CHAPTER 5

WATER QUALITY PARTNERSHIPS IN THE SOUTH FORK HOLSTON RIVER WATERSHED

5.1. BACKGROUND. The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Group 3 portion of the Tennessee portion of the South Fork Holston River Watershed. The information presented is provided by the agencies and organizations described.

5.2. FEDERAL PARTNERSHIPS.

5.2.A. Natural Resources Conservation Service. The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance Results System (PRS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRS may be viewed at http://prms.nrcs.usda.gov/prs. From the opening menu, select "Reports" in the top tool bar. Next, select "2004 Reports" if it's active, and "2003 PRMS Reports" if it's not. Pick the conservation treatment of interest on the page that comes up and reset the date to 2004 Reports if it is not set there. Pick the conservation practice of interest. In the location drop box of the page that comes up, select "Tennessee" and click on the "Refresh" button. In the "By" drop box that comes up, select "Hydrologic Unit" and click on the "Refresh" button. The report of interest can now be viewed.

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

CONSERVATION PRACTICE	TOTAL	
	FEET	ACRES
Comprehensive Nutrient Management Plans		78
Pest Management		935
Grazing/Forages Practices		436

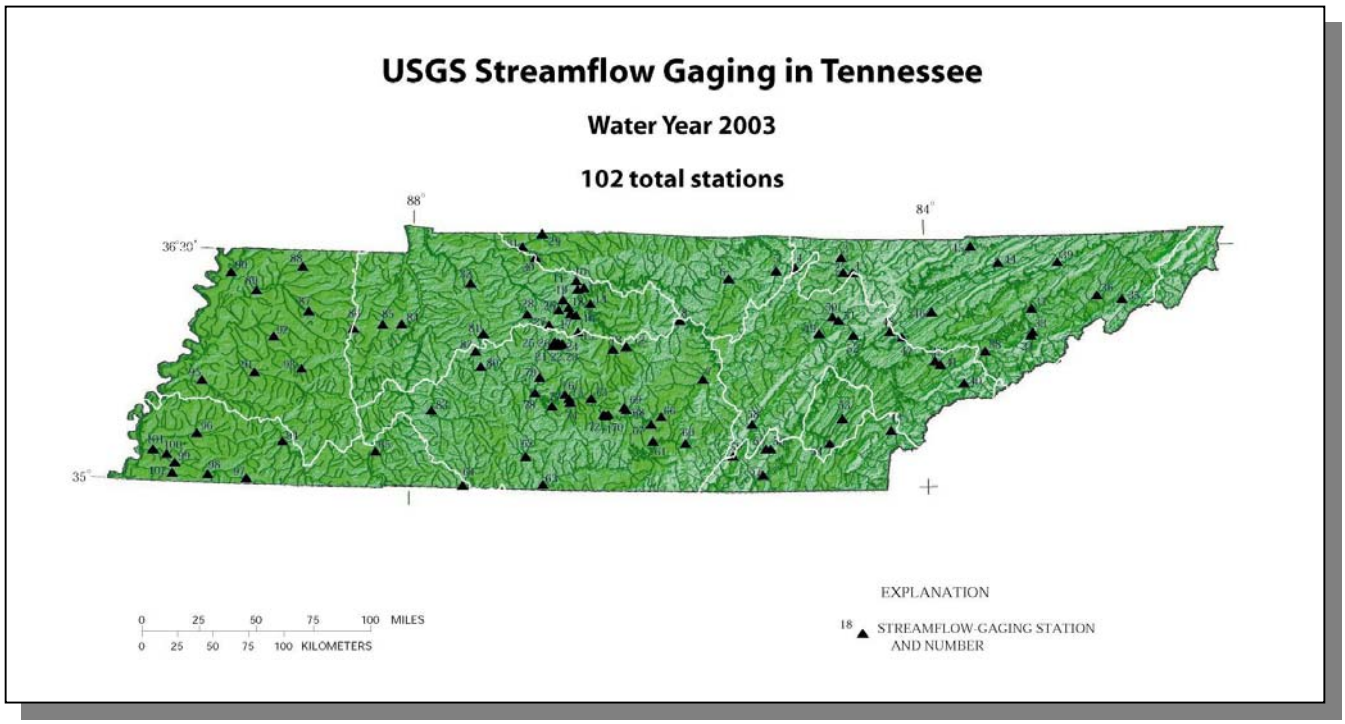
Table 5-1. Landowner Conservation Practices in Partnership with NRCS in the Tennessee Portion of the South Fork Holston River Watershed. *Data are from PRMS for October 1, 2003 through September 30, 2004 reporting period. More information is provided in Appendix V.*

5.2.B. United States Geological Survey Water Resources Programs – Tennessee District The U.S. Geological Survey (USGS) provides relevant and objective scientific studies and information for public use to evaluate the quantity, quality, and use of the Nation's water resources. In addition to providing National assessments, the USGS also conducts hydrologic studies in cooperation with numerous Federal, State, and local agencies to address issues of National, regional, and local concern. Please visit http://water.usgs.gov/ for an overview of the USGS, Water Resources Discipline.

The USGS collects hydrologic data to document current conditions and provide a basis for understanding hydrologic systems and solving hydrologic problems. In Tennessee, the USGS records streamflow continuously at more than 102 gaging stations equipped with recorders and makes instantaneous measurements of streamflow at many other locations. Ground-water levels are monitored Statewide, and the physical, chemical, and

biologic characteristics of surface and ground waters are analyzed. USGS activities also include the annual compilation of water-use records and collection of data for National baseline and water-quality networks. National programs conducted by the USGS include the National Atmospheric Deposition Program (http://bqs.usgs.gov/acidrain/), National Stream Quality Accounting Network (http://water.usgs.gov/nasqan/), and the National Water-Quality Assessment Program (http://water.usgs.gov/nawqa/). For specific information on the Upper and Lower Tennessee NAWQA studies, please visit http://tn.water.usgs.gov/lten/tenn.html

USGS Water Resources Information on the Internet. Real-time and historical streamflow, water levels, and water-quality data at sites operated by the Tennessee District can be accessed at http://waterdata.usgs.gov/tn/nwis/nwis. Data can be retrieved by county, hydrologic unit code, or major river basin using drop-down menus. Contact Donna Flohr at (615) 837-4730 or dfflohr@usgs.gov for specific information about streamflow data. Recent publications by the USGS staff in Tennessee can be accessed by visiting http://tn.water.usgs.gov/pubpg.html. This web page provides searchable bibliographic information to locate reports and other products about specific areas.



5.2.C. U.S. Fish and Wildlife Service. The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Sustaining our nation's fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. The U.S. Fish and Wildlife

Service (Service) works with State and Federal agencies and Tribal governments, helps corporate and private landowners conserve habitat, and cooperates with other nations to halt illegal wildlife trade. The Service also administers a Federal Aid program that distributes funds annually to States for fish and wildlife restoration, boating access, hunter education, and related projects across America. The funds come from Federal excise taxes on fishing, hunting, and boating equipment.

Endangered Species Program

Through the Endangered Species Program, the Service consults with other federal agencies concerning their program activities and their effects on endangered and threatened species. Other Service activities under the Endangered Species Program include the listing of rare species under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.) and the recovery of listed species. Once listed, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise taking a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements, which may remove threats facing the candidate species, and funding efforts such as the Private Stewardship Grant Program. For a complete listing of endangered and threatened species in Tennessee, please visit the Service's website at http://www.fws.gov/cookeville/.

Recovery is the process by which the decline of an endangered or threatened species is stopped and reversed, and threats to the species' survival are eliminated, so that long-term survival in nature can be ensured. The goal of the recovery process is to restore listed species to a point where they are secure and self-sustaining in the wild and can be removed from the endangered species list. Under the ESA, the Service and National Marine Fisheries Service were delegated the responsibility of carrying out the recovery program for all listed species.

In a partnership with the Tennessee Nature Conservancy (TNC), Tennessee Wildlife Resources Agency (TWRA), and Tennessee Department of Environment and Conservation (TDEC) Division of Natural Heritage, the Service developed a State Conservation Agreement for Cave Dependent Species in Tennessee (SCA). The SCA targets unlisted but rare species and protects these species through a suite of proactive conservation agreements. The goal is to preclude the need to list these species under the ESA. This agreement covers middle and eastern Tennessee and will benefit water quality in many watersheds within the State.

In an effort to preclude the listing of a rare species, the Service engages in proactive conservation efforts for unlisted species. The program covers not only formal candidates, but also other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery.

Partners for Fish and Wildlife Program

The U.S. Fish and Wildlife Service established the Partners for Fish and Wildlife Program to restore historic habitat types that benefit native fishes and wildlife. The

program adheres to the concept that restoring or enhancing habitats such as wetlands or other unique habitat types will substantially benefit federal trust species on private lands by providing food and cover or other essential needs. Federal trust species include threatened and endangered species, as well as migratory birds (e.g. waterfowl, wading birds, shorebirds, neotropical migratory songbirds).

Participation is voluntary and various types of projects are available. Projects include livestock exclusion fencing, alternate water supply construction, streambank stabilization, restoration of native vegetation, wetland restoration/enhancement, riparian zone reforestation, and restoration of in-stream aquatic habitats.

The Service is actively involved with the Smoky Mountain Resource Conservation and Development District and private landowners in the South Fork Holston River watershed to protect riparian habitats. Specific projects have included the installation of livestock exclusion fencing and alternate water supply sources.

HOW TO PARTICIPATE

- Interested landowners contact a Partners for Fish and Wildlife Biologist to discuss the proposed project and establish a site visit.
- A visit to the site is then used to determine which activities the landowner desires and how those activities will enhance habitat for trust resources. Technical advice on proposed activities is provided by the Service, as appropriate.
- Proposed cost estimates are discussed by the Service and landowner.
- A detailed proposal which describes the proposed activities is developed by the Service biologist and the landowner. Funds are competitive, therefore the proposal is submitted to the Service's Ecosystem team for ranking and then to the Regional Office for funding.
- After funding is approved, the landowner and the Service co-sign a Wildlife Extension Agreement (minimum 10-year duration).
- Project installation begins.
- When the project is completed, the Service reimburses the landowner after receipts and other documentation are submitted according to the Wildlife Extension Agreement.

For more information regarding the Endangered Species and Partners for Fish and Wildlife programs, please contact the Tennessee Ecological Services Field Office at (931)-528-6481 or visit their website at http://www.fws.gov/cookeville/.

5.2.D. Tennessee Valley Authority (TVA). TVA's goals for the 21st century are to generate prosperity for the Tennessee Valley by promoting economic development, supplying low-cost, reliable power, and supporting a thriving river system. TVA is committed to the sustainable development of the region and is engaged in a wide range of watershed protection activities. TVA has 7 multidisciplinary Watershed Teams to help communities across the Tennessee Valley actively develop and implement protection and restoration activities in their local watersheds. These teams work in partnership with business, industry, government agencies, and community groups to manage, protect,

and improve the quality of the Tennessee River and its tributaries. TVA also operates a comprehensive monitoring program to provide real-time information to the Watershed Teams and other entities about the conditions of these resources. The following is a summary of TVA's resource stewardship activities in the South Fork Holston watershed.

Monitoring

Reservoir Monitoring

Reservoir Ecological Health: TVA's Reservoir Ecological Health Monitoring program is designed to provide the necessary information from five key ecological indicators (dissolved oxygen, chlorophyll, fish community, bottom life, and sediment contaminants [PCBs, Pesticides, and Metals]) to evaluate current conditions, provide data for comparing future water quality conditions, and provide for assessments as needed for current and future operations and development.

A part of this monitoring program has been to communicate the data in an easily understandable format. TVA's approach has been to use a Reservoir Ecological Health Score. The ecological health scoring process is designed such that results from each of the five indicators are evaluated based on TVA's reservoir evaluation system and assigned a rating ranging from 1 (poor) to 5 (excellent). To arrive at an overall health evaluation for a reservoir, the sum of the ratings from all sites are totaled, divided by the maximum possible rating for that reservoir, and expressed as a percentage.

TVA monitors ecological conditions at 69 sites on 31 reservoirs. TVA monitored the quality of water resources in Fort Patrick Henry Reservoir annually from 1993 through 1997 to establish baseline data on the reservoir's ecological health under a range of weather and flow conditions. Fort Patrick Henry is now monitored every other year. Monitoring is conducted at the forebay near Fort Patrick Henry Dam (SFHRM 8.2).

The following chart present Reservoir Ecological Health scores for each year for which data are comparable.

The good rating in 2003 was a slight improvement over previous years. The main issues in Fort Patrick Henry are consistent from year to year—generally high chlorophyll concentrations and fair to poor ratings for fish, bottom life and sediment. Average chlorophyll concentrations in 2003 were the lowest to date and rated good for the first time. Chlorophyll has typically rated poor.

Figure 5-1. Vital Signs Monitoring for Fort Patrick Henry Reservoir (1994-2003)

Public and Industrial Water Supplies: Adequate water of good quality is essential for sustained population growth and economic development. In conjunction with routine water quality monitoring efforts conducted as part of Reservoir Ecological Health Monitoring, TVA collects additional water samples to be analyzed for parameters of interest to public and industrial water supplies. The purpose of these additional collections is to provide data for use in siting new water supply facilities and determining appropriate design for treatment components. Also, data are available to domestic water suppliers to assist in water treatment operations and diagnosis of abnormal conditions. By combining with routine monitoring, TVA can make these valuable data available to others and incur only the incremental cost associated with laboratory analyses.

More information about Reservoir Ecological Health Monitoring on Fort Patrick Henry Reservoir can be obtained by contacting Tyler Baker at (423)-876-6733) or tfbaker@tva.gov or http://www.tva.gov .

Bacteriological Monitoring: Recreation is one of TVA's major objectives of the integrated river resource management system. TVA develops, maintains, and promotes public use of several recreational sites. Increased public knowledge about bacterial contamination has heightened the interest in bacteriological levels in recreational waters by both TVA and our stakeholders. Each summer, about 250 swimming areas and informal water contact recreational sites throughout the Tennessee Valley are tested for fecal coliform and/or Escherichia coli (*E. coli*) bacteria by TVA's Resource Stewardship. These sites include those operated by TVA and many operated by other agencies. The site list is reexamined annually by the appropriate watershed teams and other TVA organizations

to ensure the most heavily used sites are monitored. Bacteriological water sampling is conducted between Memorial Day and Labor Day when people are most likely to be recreating. Data from this sampling effort is shared in a timely manner with TDEC's Division of Water Pollution Control.

There are no state advisories against swimming in Fort Patrick Henry Reservoir. *E. coli* bacteria levels in samples collected on the reservoir in 2003 were within the state of Tennessee's guidelines for water contact. The locations sampled were Warrior Path State Park beach, Warrior Path Marina boat ramp, and Warrior Path State informal swim area on Duck Island.

Fish Flesh Toxic Contaminants: State agencies are responsible for advising the public of health risks from eating contaminated fish. TVA assists the states by collecting fish from TVA reservoirs and checking the tissue for metals, pesticides, PCBs, and other chemicals that could affect human health. There are no fish consumption advisories on Fort Patrick Henry Reservoir. The last time TVA sampled channel catfish and largemouth bass from Fort Patrick Henry Reservoir was in autumn 2001. All contaminant levels were either below detectable levels or below the levels used by the state of Tennessee to issue fish consumption advisories. TVA will analyze fish from Fort Patrick Henry again in the autumn of 2005.

More information on bacteriological and fish tissue monitoring on Fort Patrick Henry Reservoir can be obtained by contacting Rebecca Hallman at (423)876-6736 or rlhallman@tva.gov or http://www.tva.gov .

Stream Bioassessment

Condition of water resources in South Fork Holston watershed streams is measured using three independent methods; Index of Biotic Integrity (IBI), number of mayfly, stonefly, and caddisfly taxa (EPT), and Habitat Assessment. Not all of these tools were used at each stream sample site.

IBI - The index of biotic integrity (IBI) assesses the quality of water resources in flowing water by examining a stream's fish assemblage. Fish are useful in determining long-term (several years) effects and broad habitat conditions because they are relatively long-lived and mobile. Twelve metrics address species richness and composition, trophic structure (structure of the food chain), fish abundance, and fish health. Each metric reflects the condition of one aspect of the fish assemblage and is scored against reference streams in the region known to be of very high quality. Potential scores for each of the twelve metrics are 1-poor, 3-intermediate, or 5-the best to be expected. Scores for the 12 metrics are summed to produce the IBI for the site. The following table associates IBI ranges with attributes of fish assemblages.

Attributes	IBI Range
Comparable to the best situations without influence of man; all regionally expected species for the habitat and stream size, including the most intolerant forms, are present with full array of age and sex classes; balanced trophic structure.	58-60
Species richness somewhat below expectation, especially due to loss of most intolerant forms; some species with less than optimal abundance or size distribution; trophic structure shows some signs of stress.	48-52
Signs of additional deterioration include fewer intolerant forms, more skewed trophic structure (e.g., increasing frequency of omnivores); older age classes of top predators may be rare.	40-44
Dominated by omnivores, pollution-tolerant forms, and habitat generalists; few top carnivores; growth rates and condition factors commonly depressed; hybrids and diseased fish often present.	28-34
Few fish present, mostly introduced or tolerant forms; hybrids common; disease, parasites, fin damage, and other anomalies regular.	12-22

EPT - The number and types of aquatic insects, like fish, are indicative of the general quality of the environment in which they live. Unlike fish, aquatic insects are useful in determining short-term and localized impacts because they are short-lived and have limited mobility. The method TVA uses involves only qualitative sampling and field identification of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) to the family taxonomic level (EPT). The score for each site is simply the number of EPT families. The higher EPT scores are indicative of high quality streams because these insect larvae are intolerant of poor water quality.

Habitat Assessment - The quality and quantity of habitat (physical structure) directly affect aquatic communities. Habitat assessments are done at most stream sampling sites to help interpret IBI and EPT results. If habitat quality at a site is similar to that found at a good reference site, any impacts identified by IBI and EPT scores can reasonably be attributed to water quality problems. However, if habitat at the sample site differs considerably from that at a reference site, lower than expected IBI and EPT scores might be due to degraded habitat rather than water quality impacts.

The habitat assessment method used by TVA (modified EPA protocol) compares observed instream, channel, and bank characteristics at a sample site to those expected at a similar high-quality stream in the region. Each of the stream attributes listed below is given a score of 1 (poorest condition) to 4 (best condition). The habitat score for the sample site is simply the sum of these attributes. Scores can range from a low of 10 to a high of 40.

1. Instream cover (fish)
2. Epifaunal substrate
3. Embeddedness
4. Channel Alteration
5. Sediment Deposition
6. Frequency of Riffle
7. Channel Flow Status
8. Bank vegetation protection - Left bank and right bank, separately
9. Bank stability - Left bank and right bank, separately
10. Riparian vegetation zone width - Left bank and right bank, separately

Sample Site Selection - EPT sampling and fish community assessment (IBI) are conducted at the same sites. Site selection is governed primarily by study objectives, stream physical features, and stream access. TVA's objective is to characterize the quality of water resources within a watershed (11-digit hydrologic unit). Sites are typically located in the lower end of sub-watersheds and at intervals on the mainstem to integrate the effects of land use. A total of 3 sites are sampled in the South Holston drainage. These sites are typically sampled every five years to keep a current picture of watershed condition.

Details about stream bioassessment sampling sites and scores can be obtained by writing Charles Saylor at Tennessee Valley Authority, PO Box 920, Ridge Way Road, Norris, TN 37828 or calling him at 865-632-1779. Email address is cfsaylor@tva.gov

Watershed Assistance

Outreach

The National Clean Boating Campaign is a partnership program which highlights the importance of clean water so boating will continue to be fun and safe for future generations. The program demonstrates how boaters can be good stewards of their water environment through best boating and marina practices. The Clean Boating Campaign on Fort Patrick Henry Reservoir began in 2000. Materials were distributed at local marinas that expressed an interest in the program and at public access areas. TVA plans to continue this partnership in upcoming years by working with the marinas and Friends of Fort Patrick Henry.

The Tennessee Valley Clean Marina Initiative is an effort by TVA to promote environmentally-responsible marina practices. A voluntary program, established in support of the National Clean Boating Campaign, helps marina operators protect the resource that provides them with their livelihood.

Friends of Fort Patrick Henry is an organization dedicated to improving water quality in Fort Patrick Henry Reservoir. The group is made up of property owners, citizens, and local government agencies. Cleanups are held several times a year. For further information, contact Harry Miles at 423-239-8242, or hmiles@chartertn.net

The Holston River Watershed Alliance was established in February 2000 by TVA and has developed a shared vision for improved water quality for the greater Kingsport area. For information on how to become involved in this partnership effort, contact Sam Jones (Chairman) 423-239-8225 or Liesa Jenkins 423-246-2017.

Protection and Restoration Activities

TVA provides funding and technical assistance for protection and restoration activities to various organizations in the South Fork Holston River Watershed. TVA supports the Keep Kingsport Beautiful Team in all of its Keep America Beautiful endeavors. TVA supported the 4th Annual Fort Patrick Henry Lake Cleanup during 2004. Additional cleanups were conducted on Transbarger Branch, Madd Branch, and Reedy Creek. A shoreline stabilization project was completed at Warriors' Path State Park on Fort Patrick Henry Reservoir.

5.3. STATE PARTNERSHIPS.

5.3.A. TDEC Division of Water Supply. The Source Water Protection Program, authorized by the 1996 Amendments to the Safe Drinking Water Act, outline a comprehensive plan to achieve maximum public health protection. According to the plan, it is essential that every community take these six steps:

1) Delineate the drinking water source protection area
2) Inventory known and potential sources of contamination within these areas
3) Determine the susceptibility of the water supply system to these contaminants
4) Notify and involve the public about threats identified in the contaminant source inventory and what they mean to their public water system
5) Implement management measures to prevent, reduce or eliminate threats
6) Develop contingency planning strategies to deal with water supply contamination or service interruption emergencies (including natural disaster or terrorist activities).

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, and ground water (wells and springs) that serve as sources of drinking water before they become contaminated. This objective requires locating and addressing potential sources of contamination to these water supplies. There is a growing recognition that effective drinking water system management includes addressing the quality and protection of the water sources.

Source Water Protection has a significant link with the Watershed Management Program goals, objectives and management strategies. Watershed Management looks at the health of the watershed as a whole in areas of discharge permitting, monitoring and protection. That same protection is important to protecting drinking water as well. Communication and coordination with a multitude of agencies is the most critical factor in the success of both Watershed Management and Source Water Protection.

Watershed management plays a role in the protection of both ground water and surface water systems. Watershed Management is particularly important in areas with karst (limestone characterized by solution features such as caves and sinkholes as well as disappearing streams and spring), since the differentiation between ground water and surface water is sometimes nearly impossible. What is surface water can become ground water in the distance of a few feet and vice versa.

Source water protection is not a new concept, but an expansion of existing wellhead protection measures for public water systems relying on ground water to now include surface water. This approach became a national priority, backed by federal funding, when the Safe Drinking Water Act amendments (SDWA) of 1996 were enacted. Under this Act, every public drinking water system in the country is scheduled to receive an assessment of both the sources of potential contamination to its water source of the threat these sources may pose by the year 2003 (extensions were available until 2004). The assessments are intended to enhance the protection of drinking water supplies

within existing programs at the federal, state and local levels. Source water assessments were mandated and funded by Congress. Source water protection will be left up to the individual states and local governments without additional authority from Congress for that progression.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at http://www.state.tn.us/environment/dws as well as other information regarding the Source Water Assessment Program and public water systems.

For further discussion on ground water issues in Tennessee, the reader is referred to the Ground Water Section of the 305(b) Water Quality Report at:

http://www.state.tn.us/environment/water.htm.

The intent of this report is to provide the public with an overall characterization of ground water quality and hydrogeology for Tennessee.

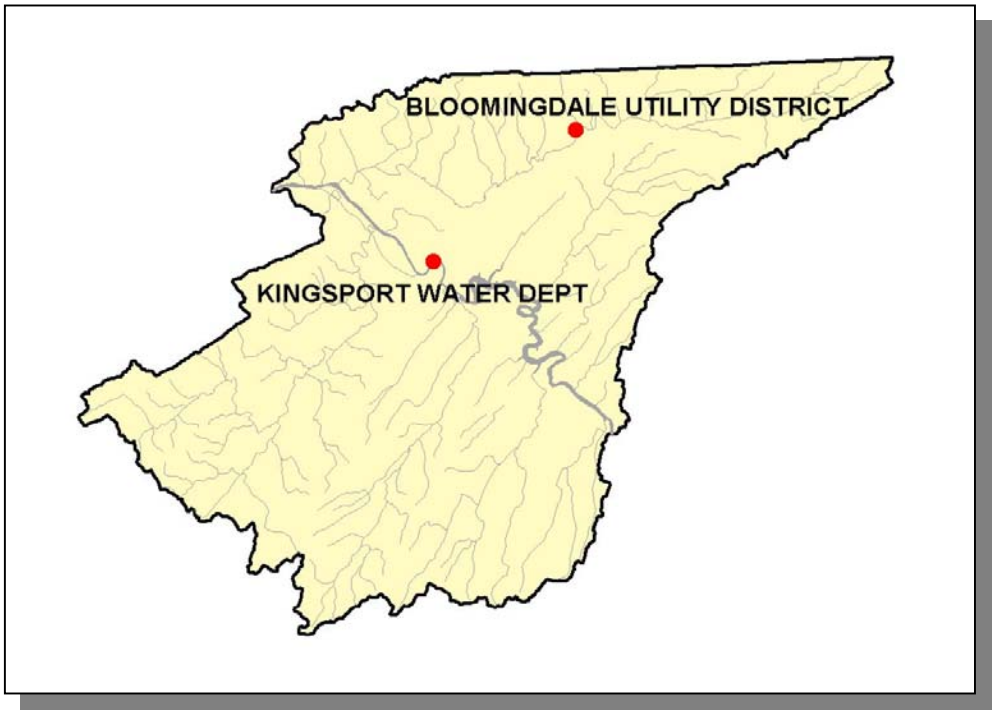


Figure 5-2. Locations of Community and Non-Community Public Water Supply Intakes in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed.

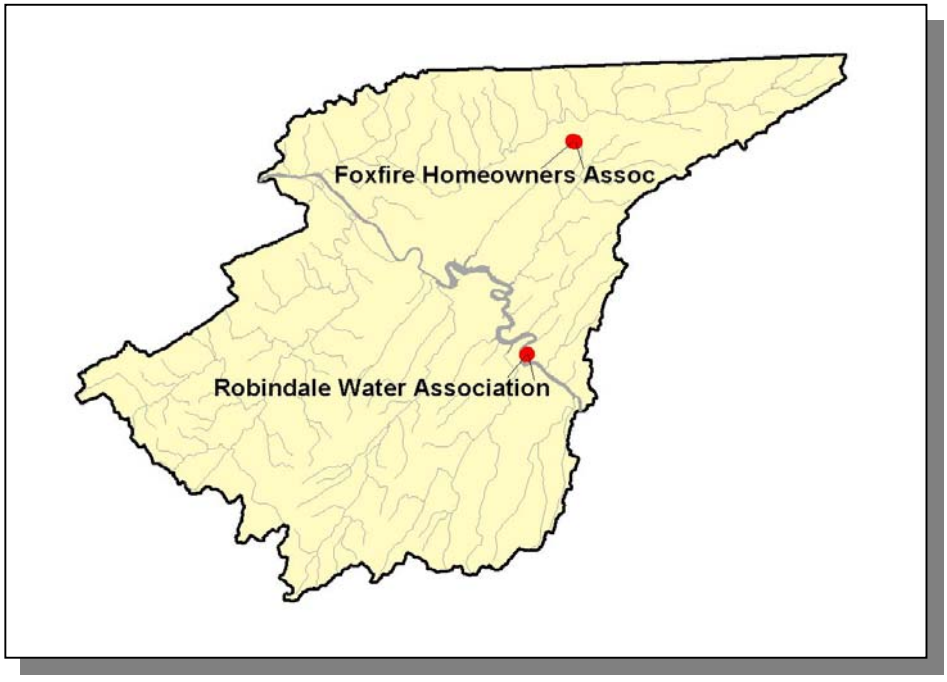


Figure 5-3. Locations of Community and Public Groundwater Supply Intakes in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed.

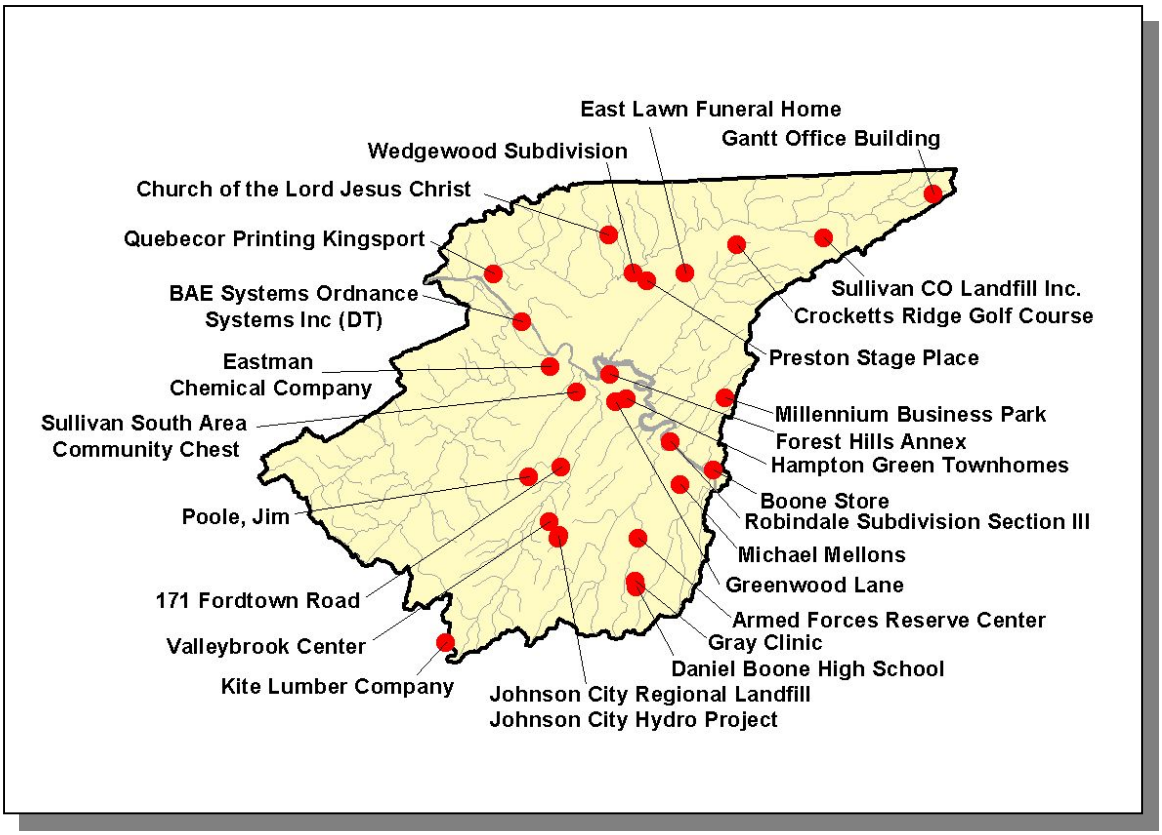


Figure 5-4. Locations of UIC (Underground Injection Control) Sites in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. *Injection wells include stormwater sinkholes modified for drainage, commercial/industrial septic tanks, and large capacity septic tanks.*

5.3.B. TDEC Division of Community Assistance. The Division of Community Assistance administers the state's Clean Water State Revolving Fund Program. Amendment of the Federal Clean Water Act in 1987 created the Clean Water State Revolving Fund (SRF) Program to provide low-interest loans to cities, counties, and utility districts for the planning, design, and construction of wastewater facilities. The U.S. Environmental Protection Agency awards annual capitalization grants to fund the program and the State of Tennessee provides a twenty-percent funding match. The Division of Community Assistance has awarded loans totaling approximately $675 million since the creation of the SRF Program. SRF loan repayments are returned to the program and used to fund future SRF loans.

SRF loans are available for planning, design, and construction of wastewater facilities, or any combination thereof. Eligible projects include new construction or upgrading/expansion of existing facilities, including wastewater treatment plants, pump

stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and nonpoint source pollution remedies.

SRF loan applicants must pledge security for loan repayment, agree to adjust user rates as needed to cover debt service and fund depreciation, and maintain financial records that follow governmental accounting standards. SRF loan interest rates range from zero percent to market rate, depending on the community's per-capita income, taxable sales, and taxable property values. Most SRF loan recipients qualify for interest rates between 2 and 4 percent. Interest rates are fixed for the life of the term of the loan. The maximum loan term is 20 years or the design life of the proposed wastewater facility, whichever is shorter.

The Division of Community Assistance maintains a Priority Ranking System and Priority List for funding the planning, design, and construction of wastewater facilities. The Priority Ranking List forms the basis for funding eligibility determinations and allocation of Clean Water SRF loans. Each project's priority rank is generated from specific priority ranking criteria and the proposed project is then placed on the Project Priority List. Only projects identified on the Project Priority List may be eligible for SRF loans. The process of being placed on the Project Priority List must be initiated by a written request from the potential SRF loan recipient or their engineering consultant. SRF loans are awarded to the highest priority projects that have met SRF technical, financial, and administrative requirements and are ready to proceed.

Since SRF loans include federal funds, each project requires development of a Facilities Plan, an environmental review, opportunities for minority and women business participation, a State-approved sewer use ordinance and Plan of Operation, and interim construction inspections.

For further information about Tennessee's Clean Water SRF Loan Program, contact the Division of Community Assistance by telephone at (615) 532-0445 or visit their Web site at http://www.state.tn.us/environment/dca.

Figure 5-5. Location of Communities Receiving SRF Loans or Grants in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. *More information is provided in Appendix V.*

5.3.C. Tennessee Department of Agriculture. The Tennessee Department of Agriculture's Water Resources Section consists of the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program basically funds three types of programs:

- BMP Implementation Projects. These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.

- Monitoring Projects. Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified. Some monitoring in the South Fork Holston River Watershed was funded under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program (U.S. Environmental Protection Agency Assistance Agreements C9994674-00-0, C9994674-01-0, and C9994674-02-0).

- Educational Projects. The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator. More information forestry BMPs is available at: http://tennessee.gov/agriculture/forestry/BMPs.pdf, and the complaint form is available at: http://tennessee.gov/environment/wpc/logform.php.

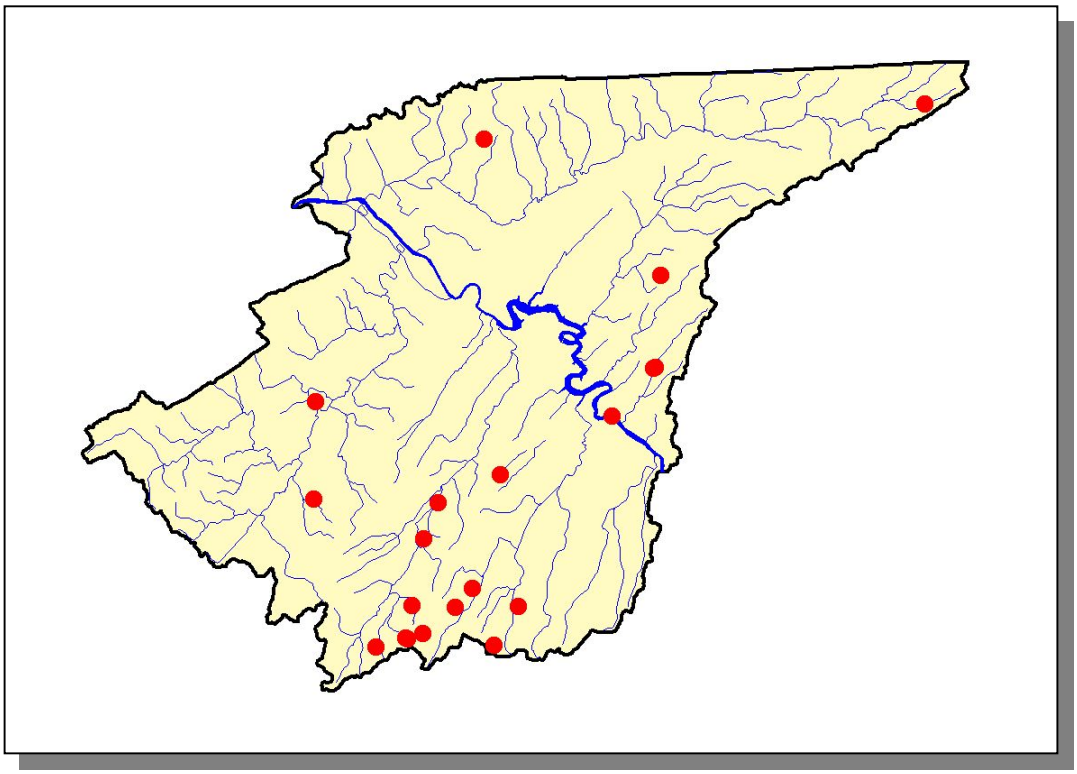


Figure 5-6. Location of BMPs installed from 1999 through 2003 in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed with Financial Assistance from the Tennessee Department of Agriculture's Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs. *More information is provided in Appendix V.*

5.3.D. Virginia Department of Environmental Quality. Water quality management planning in Virginia began in 1972, with the passage of the Clean Water Act. Section 303(e) of the law required development of water quality management plans that focused on pollution control and set strategies for its prevention and control on a basin-wide basis. Section 208 of PL 92-500 required area-wide waste treatment management planning for areas having industrial concentrations or having other factors.

The State Water Control Board (SWCB) originally adopted the Tennessee–Big Sandy Water Quality Management Plan (WQMP) in 1977 as a regulatory document. The plan was later amended in 1980. In 2003, the Tennessee-Big Sandy WQMP was de-regulated. A Water Quality Management Plan Regulation was put in place after all basin plans were de-regulated. Serving as a repository for EPA approved TMDL Reports for each impaired segment, the WQMP regulation also includes wasteload allocations for permitted dischargers within the Commonwealth. It is the intention of the Virginia Department of Environmental Quality to update and amend the Water Quality Management Plan Regulation as more TMDL's are approved by EPA or as new wastewater treatment plants are constructed and permitted in the Commonwealth.

Authority for Water Quality Management Planning. State Law; Section 62.1-44.15(13) of the Code of Virginia authorizes the SWCB to establish policies and programs for effective area wide and basin wide water quality control and management. Section 62.1-44.19:7 of the Code of Virginia authorizes the SWCB to develop and implement a plan to achieve fully supporting status for impaired waters of the state.

Federal Law: Water quality management plans are required by Section 303(e) of the Clean Water Act (CWA) as implemented by 40 CFR 130. In 2002, EPA emphasized the Continuous Planning Process and watershed planning.

Purpose of the Plan. Plans are intended to provide a management tool for assisting the Commonwealth, local governments, industries and agricultural interests in anticipating, achieving and maintaining applicable water quality goals in the river basins. Plans need to meet all applicable requirements of 40 CFR 130 for water quality management plans and meet the requirements of the Virginia Water Quality Monitoring, Information and Restoration Act, Section 62.1-44.19-4 et seq. of the Code of Virginia.

Holston River Basin Total Maximum Daily Load Reports. There are three completed and approved TMDL reports in this river basin. The first recreational use TMDL report that was approved was for Hutton, Hall/Byers and Cedar Creeks in 2001. These streams are tributaries to Middle Fork Holston River in Washington County, Virginia. In 2003, additional work was completed to address aquatic life use impairments in the three creeks as well. The three creeks watershed was one of the first Implementation Plans completed in Virginia. The implementation plan has been funded and implemented over the past 2 years. In 2001, a TMDL study for recreational use impairment was completed on Little Creek in Bristol. Little Creek is a tributary to Beaver Creek. In 2004, a TMDL study was approved for aquatic life use and recreational use impairments on Beaver Creek in Bristol. Beaver Creek flows to Boone Lake in Tennessee. The Virginia Department of Conservation and Recreation is planning to develop an Implementation Plan for both Beaver Creek and Little Creek in 2005. The TMDL reports for these stream segments are available on the DEQ website: http://www.deq.virginia.gov.

Implementation Plans. In 1998, implementation plans for approved TMDL studies were mandated in the Water Quality Monitoring, Improvement and Restoration Act. The Department of Conservation and Recreation, through a memorandum of understanding with the Department of Environmental Quality, have taken the lead role in instances where the sources of impairment are due to nonpoint influences.

Beginning in June 2000, the Department of Conservation and Recreation held meetings with grassroot public participation to develop an Upper Tennessee River Watershed Strategic Plan. The purpose of this document was to assess the quality of waters and to identify ways to make them comply with water quality standards. An umbrella group, Upper Tennessee River Roundtable, is using this document as a spring-board for writing grant applications to implement some of the recommended strategies. In 2004, this group, in cooperation with Tennessee and North Carolina, successfully wrote a million dollar grant to undertake demonstration projects and provide educational opportunities in the Tennessee River Basin.

Future TMDL Studies for the Holston River Watershed. There is a Mercury impaired segment on North Fork Holston River that is scheduled for TMDL development within the next 4 years. To find out about other impaired segments, visit the DEQ website, http://www.deq.virginia.gov and search on TMDLs. For questions about impaired segments of the Upper Tennessee River Basin located in Virginia, you may contact Nancy T. Norton, P.E. at (276)676-4807 or by email at ntnorton@deq.virginia.gov.

5.4. LOCAL INITIATIVES.

5.4.A. Kingsport Citizens for a Cleaner Environment. Kingsport Citizens for a Cleaner Environment (KCCE) is a new organization situated in the South Fork Holston River Watershed. Chartered in late 2001, we are committed to improving, protecting and preserving the region in which we live, work, and play.

Our organization is concerned about the quality of our air, land and water. We also believe in strong citizen input regarding issues that affect us all. Because the South Fork of the Holston River flows through a heavily industrialized area of Tennessee, our group takes a keen interest in keeping the river as clean and unharmed as possible.

In the past year we have partnered with the Holston Watershed Alliance (HWA) and the Tennessee Valley Authority's Resource Stewardship project to make the South Fork and mainstem Holston River Watersheds one of the best in Tennessee.

The water bodies that we are particularly concerned about are Madd Branch, Horse Creek, Tranbarger Branch, and Reedy Creek, all of which have a geographical relationship with Kingsport and the South Fork Holston itself.

Regarding Madd Branch, KCCE joined with the Dobyns-Bennett High School Geography class each spring from (2002 to 2004) to clean out the hundreds of bags of garbage found in less than a mile of that stream. During recent clean-ups, we have noticed that ducks, including newly hatched ducklings, have been coming back to the stream. Students also witnessed turtles and other signs of improved conditions that support aquatic life in the creek. At our Clean Air Conference and Youth Forum in 2002, students planted trees along the banks. Nevertheless, much more needs to be done, including persuading homeowners along the creek to use less chemicals on their yards (which wash into the creek), causing choking growths of algae in the summer months.

In the fall of 2003, KCCE worked with Kingsport's Girls, Inc., Dobyns-Bennett High School's Stone Soup group, and Sullivan County's Middle School 4-Hers to monitor more than 20 streams, most in the South Fork of the Holston Watershed. This project was carried out as part of the World Water Monitoring Day activities throughout the world. Students found a wide variety of stream qualities in their testings, which included pH, turbidity, dissolved oxygen, water temperatures, etc. Results are listed along with other Tennessee water quality results at http://www.worldwatermonitoringday.org.

For more information, contact:

Rachael Bliss, Program Director
Kingsport Citizens for a Cleaner Environment
108 East Main Street
Kingsport, TN 37660
(423)-247-2481
kingcitizens@cs.com

5.4.B. Friends of Fort Patrick Henry. Friends of Fort Patrick Henry is a tax-exempt organization dedicated to improving water quality in Fort Patrick Henry Reservoir. The group is made up of property owners, citizens, and local agencies. Cleanups to remove man-made trash are held twice a year in cooperation with TVA, local governments, and public agencies. Water quality testing is conducted and an ongoing Lake Watch effort is ongoing. For further information contact Harry Miles at 423-239-8242, or hmiles@chartertn.net

5.4.C. Holston River Watershed Alliance. The Holston River Watershed Alliance was formed in March 2000 by TVA and local stakeholders to define a vision for the watershed and to involve key partnerships in a sustainable coalition advancing that vision. Kingsport Tomorrow, a citizen-based action organization, TVA, business and government leaders from Kingsport, Sullivan and Hawkins Counties and the State of Tennessee are active participants in the effort. Recent focus has been on projects to remove impacted waters from the State's list. For information on how to become involved in this partnership effort, contact Sam Jones (Chairman) 423-239-8225 or Susan LaGuardia 423-246-2017, or by email: (slaguardia@kingsporttomorrow.org).

5.4.D. Overmountain Chapter Trout Unlimited. The Overmountain Chapter of Trout Unlimited is dedicated to conserving, protecting and restoring cold water habitats.

We believe that:

- Trout fishing is fishing for sport, rather than food, where true enjoyment of the sport lies in the challenge, the lore and the battle of wits, not necessarily the full creel.
- It's the feeling of satisfaction that comes from participation, not from killing your limit.
- It's communing with nature where the chief reward is a refreshed body and a contented soul, where a license is a permit to use, not abuse; to enjoy, not destroy our trout waters.
- We believe that we can give back to the future by working together to conserve and improve cold-water fisheries today.

Projects Currently Supported by the Overmountain Chapter:

- Tennessee Bottle Bill http://www.tnbottlebill.org/
- Back the Brookies http://www.brookie.org/
- Stop Aquatic Hitchhikers http://www.protectyourwaters.net/hitchhikers/
- Boone Watershed Partnership http://www.geocities.com/rainforest/vines/6411/

- TU Embrace-A-Stream Program
  http://www.tu.org/site/pp.asp?c=7dJEKTNuFmG&b=277882

- The Didymosphenia Symposium sponsored by the EPA

- Stream sampling conducted by the TWRA

In addition the Overmountain Chapter sponsors five stream clean-ups and a Youth Flyfishing Class which emphasizes the importance of our mission.

The Overmountain Chapter of Trout Unlimited meets monthly in Johnson City. If you are interested in joining or would like to learn more about us, visit http://www.omtu.org.